

# 4.01 Derivatives & Hedge Accounting

## Financial Instruments

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Financial instruments are defined under ASC 815 to include:

- Cash
- Ownership interests in an entity (eg, stock)
- Contracts that create **both**:
  - An **obligation** to transfer one or more financial instruments by one entity
  - A **right** to receive one or more financial instruments by another entity (eg, derivatives, debt securities, accounts receivable/payable, loans, etc.)

Some financial instruments, including notes and loans receivable or payable, are generally reported at amortized cost. Investments in the equity securities of nonpublic companies are usually accounted for at cost or under a valuation approach, such as the equity method. Many financial instruments, including investments in certain marketable securities and all derivatives, should be reported on the financial statements (F/S) at fair value.

## Derivatives

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Entities acquire derivatives for *three reasons*. They acquire them as investments, for arbitrage, or as hedges. (ASC 815)

1. **Investments** – An entity may invest its excess working capital, or amounts set aside in sinking funds, in derivatives such as stock options to increase its return on investment. When an entity's stock options are publicly traded, they generally sell for substantially less than the security they provide the option to acquire. An increase in the value of the stock will result in a comparable increase in the value of the stock option.
  - Based on a lower investment amount, the return is greater.
  - If the value of the stock decreases, of course, there is a comparably disproportionate decrease in the value of the derivative, making it a relatively high-risk investment.
2. **Arbitrage** – Arbitrage is the ability to take advantage of price differentials in separate markets allowing the entity to enter transactions that are potentially profitable without significant risk of loss.

If, for example, the six-month future price of a commodity was \$1, the entity may enter a futures contract requiring it to buy 100,000 units at \$1 at the end of six months. In another market, the six-month future price may be \$1.05 and the entity may enter into a futures contract requiring it to sell 100,000 units at \$1.05 after six months. In reality they will neither buy nor sell the commodity. Instead:

- If the market price is below \$1, the entity will pay the difference between \$1 and the market price to the counterparty in the buy contract. At the same time, the entity will receive the difference between \$1.05 and the market price from the counterparty to the sell contract. As a result, the entity will earn the difference, \$.05 per unit.

- If the market price is above \$1.05, the entity will receive the difference between \$1 and the market price from the counterparty in the buy contract. At the same time, the entity will pay the difference between \$1.05 and the market price to the counterparty to the sell contract. As a result, the entity will earn the difference, \$.05 per unit.
- If the market price is between \$1 and \$1.05, the entity will receive the difference between \$1 and the market price from the counterparty in the buy contract. At the same time, the entity will receive the difference between \$1.05 and the market price from the counterparty to the sell contract. As a result, the entity will earn the difference, \$.05 per unit.

3. **Hedge** – A hedge is the use of a derivative to reduce or eliminate a risk that the entity is subject to either as a result of an asset or liability recognized on its F/S or a future transaction.

If, for example, an entity has a commitment for an asset being manufactured for it that is expected to be delivered in six months at a cost of 100,000 Foreign Currency Units or FCU (such as Euros or Pesos), which has an exchange rate of \$1.25. In other words, 1 FCU will cost \$1.25 and the cost of the machine is \$125,000.

If the exchange rate of the FCU increases to \$1.30, the asset will cost the entity \$130,000 instead of \$125,000, which may be more than the entity has budgeted for the acquisition. The entity may enter into a derivative such as a forward exchange contract under which it is required to acquire 100,000 FCUs at the end of six months at the exchange rate of \$1.25 per FCU.

- If the exchange rate increases above \$1.25, the entity will pay more for the asset but will receive the difference from the counterparty.
- If the exchange rate decreases below \$1.25, the entity will pay less for the asset, but will be required to pay the difference to the counterparty.

As indicated, derivatives are acquired to increase potential gains when used as investments but may also produce losses. Derivatives are used as hedges to reduce or eliminate the risk of an adverse change in circumstances, but also eliminate the opportunity to take advantage of a favorable change.

- Derivatives may be assets or liabilities.
- Derivatives are always reported at their *fair values*.
- Unrealized gains and losses are generally recognized in income.
  - Unrealized gains and losses on cash flow hedges are temporarily recognized in other comprehensive income (OCI) instead of income.
  - Unrealized gains and losses on fair value hedges are recognized in income along with offsetting losses or gains on the hedged item.
  - All other unrealized gains and losses on hedges are recognized in income in the period of the increase or decrease in value.

Derivatives are financial instruments that have the following three characteristics (**NUNS**):

- **No net investment** – To be considered a derivative, there must either be no initial net investment or an initial net investment that is smaller than would normally be required for an instrument that would respond similarly in the market.
  - Derivatives such as interest rate swaps, futures contracts, and forward exchange contracts often require no initial net investment or an investment that is limited to fees paid to attorneys and others to establish the derivative.

- Derivatives such as stock options require a smaller investment than the shares underlying the derivative yet will respond similarly to the shares as the value of the shares increase or decrease.
- **An Underlying and a Notional amount** – The notional amount is basically the number of units (units, bushels, pounds) and the underlying is the factor that affects the derivative's value (specified price, interest rate, exchange rate). In a forward exchange contract, for example, the notional amount would be the number of FCUs and the underlying would be the future exchange rate.
- **Net Settlement** – The derivative can be settled in a net amount. In the case of a forward exchange contract, for example, the entity does not actually buy or sell the FCUs but, instead, receives or pays the difference between the agreed upon exchange rate and the market rate. In the case of an interest rate swap, the parties do not pay each other the contractual interest amounts but the difference is paid from one party to the other.

Since one of the characteristics of a derivative is the requirement that it can be settled on a net basis, a derivative will always be settled by the transfer of a financial instrument. As a result, a derivative is always considered a financial instrument for financial reporting purposes.

- Examples of Derivatives include:
  - **Option contract** – Has *right* but *not obligation* to purchase/sell in the future. Put-option, right to sell shares, call-option, right to acquire shares in the future.
  - **Futures contract** – Has *right and obligation* to deliver/purchase foreign currency or goods in the future at a price set today. Similar to a forward contract normally traded on a national exchange.
  - **Forward contract** – Has *right and obligation* to buy or sell a commodity at a future date for an agreed-upon price.
  - **Interest rate or foreign currency swap** – A forward-based contract or agreement between two counterparties to exchange streams of cash flows over a specified period in the future.
- Note that these instruments create **off-balance sheet risk**, due to the possible changes in amounts owed.
  - Disclose the **credit risk**—ie, risk that a loss occurs because another party fails to perform according to the terms of a contract.
  - Required disclosures about each significant concentration
    - Activity, region, or economic characteristic
  - The maximum amount of loss due to credit risk
  - The entity's policy of requiring collateral or other security
  - The entity's policy arrangements to mitigate the credit risk.
  - Optional to disclose **market risk**—ie, the risk a loss may occur as a result of changes in the market value of financial instruments due to economic circumstances.



Someone who wants to make a large investment in the stock market can do so without buying any stocks through the use of **stock index futures**. Let's select a popular index of stock market prices, the Standard and Poor's 500 index based on the market value of 500 large U.S. corporations (commonly known as the S&P index).

Assume for the moment that a corporation wants to make a \$10,000,000 investment in the U.S. stock market on October 1 at a time the S&P index is 1,000. The company can buy a stock index futures contract for 10,000 units of the S&P index. With an underlying of 1,000 and a notional amount of 10,000, this is the equivalent of making an investment of  $1,000 \times 10,000 = \$10,000,000$ . The company does not, however, put up any cash.

Let's assume that the futures contract has a settlement date on January 2 of the following year, and that the S&P index has risen to 1,200 as of the end of the current year. The increase of 200 in the underlying multiplied by the 10,000 notional amount means that the company expects to receive a check for  $200 \times 10,000 = \$2,000,000$  from the party that took the other side of the futures contract.

There is no entry on October 1, since no exchange of cash took place. At the end of the year, the expectation of receiving a settlement of \$2,000,000 in a couple of days is reported as follows:

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Receivable on derivative	2,000,000	
Gain on derivative		2,000,000

This is a gain on the **speculative** use of derivatives since the company acquired the derivative purely as an attempt to profit from stock market increases.

If, instead, the S&P dropped to 800 during that time period, the company would have to pay \$2,000,000 to the other side. A payable and loss would be recorded for the cash expected to be paid at settlement. Notice that no actual stock needs to be involved: the derivative is settled by a transfer of cash from one side to the other.

Popular derivatives such as stock index futures are easily available through public securities markets, but derivatives can also be created privately. A common example of a private derivative is an **interest rate swap agreement**.



For example, Bank 1 that has made many loans with variable interest rates might contract with Bank 2 that has made many loans with fixed interest rates. Bank 1 is concerned about a drop in interest rates that would reduce its interest income. Bank 2 is concerned about a rise in interest rates that it could not benefit from with fixed rate loans. They sign a contract agreeing that each party will pay the other amounts based on the interest rates of the loans each bank has outstanding with customers.

In the specific case of the interest rate swap, there are two risks that cannot be reflected on the F/S (**off-balance-sheet risk**) but need to be disclosed in connection with such an agreement:

- The risk of exchanging a lower interest rate for a higher one.

- The risk that the other bank might default on the agreement (**credit risk**).

Generally, any financial instrument with off-balance-sheet risks requires disclosures in the notes to the F/S. In addition, for all financial instruments, the client must disclose **concentration of credit risk**, which is a special risk of multiple defaults when a client is depending on the performance of many different parties who are affected by common issues.

For example, a bank which lends only to farmers in a certain area has a concentration of credit risk associated with the possibility of weather-related crop failures or general declines in agricultural prices affecting all of the bank's customers at once.

Finally, the client may hold investments whose fair value cannot be reasonably estimated. When this is true, any information that might assist the F/S user in determining the value of the investments must be disclosed. An explanation of the reason the value cannot be estimated is also needed.

As indicated, all derivatives are required to be reported at fair value. When accounted for as a cash flow hedge, unrealized gains and losses are initially reported in OCI. Unrealized gains/losses on fair value hedges and derivatives that are not designated as hedges are reported in net income.

In many cases, the fair value of a derivative is readily determinable. When it is not, the intrinsic value of the instrument is often used.

- An option to purchase a share of stock for \$30 when its market value is \$30 has no intrinsic value because it provides no benefit to the holder.
- An option to purchase a share at \$30 when its market value is \$35, however, has an intrinsic value of \$5.
- In addition, depending on the length of the exercise period remaining, there may be a time value, which would be added to the intrinsic value in determining the value of the option.